



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/066,077	01/31/2002	Sten Frolich	ANO 6187 US1/316ICIP	4735
7590 12/29/2005			EXAMINER	
LAINIE E. PARKER AKZO NOBEL INC. 7 LIVINGSTONE AVENUE DOBBS FERRY, NY 10522-3408			CORDRAY, DENNIS R	
			ART UNIT	PAPER NUMBER
			1731	

DATE MAILED: 12/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/066,077	FROLICH ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Dennis Cordray	1731	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 11/7/2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Begala (5,595,629) in view of Begala (5,185,062) and further in view of applicant's admitted prior art teaching (PAT) on p 1, lines 16-26.

Begala '629 discloses addition of a cationic polymer to a cellulosic slurry, followed by a shear step, then addition of an anionic polymer (separate addition) (col 2, lines 65-67 and col 3, lines 4-6). Dimethylaminoethyl acrylate benzyl chloride quaternary is indicated as a preferred monomer for the cationic polymer (col 5, lines 14-19). This monomer is cited on page 4, lines 4-7 of the instant disclosure as a suitable monomer. Begala ('629) further discloses that the amount of cationic monomers used in the polymer is greater than 2 mole percent and preferably greater than 10 mole percent (col 3, lines 29-34). Begala '629 discloses that the anionic polymer has a molecular weight from 500 to 120,000 and that the cationic polymer has a molecular weight of 500,000 to 20,000,000 (Abstract). The cationic polymer is present from 0.005 to 0.6 percent, based on the dry weight of the slurry (col 3, lines 34-39). The anionic polymer is present from 0.005 to 0.5 percent, based on the dry weight of the slurry solids (claim 1). Begala '629 also discloses that other additives, such as sizing agents, may be used in the process without substantial interference with the activity of the cationic polymer/anionic polymer combination (col 4, lines 23-27). Begala et al is silent

Art Unit: 1731

as to the use of reactive size as the sizing agent. However, PAT teaches that reactive sizing agents, notably ketene dimers and acid anhydrides, are standard and conventional paper making additives (page 1, lines 16-26 of the specification). Moreover there is no criticality as which type of conventional size (i.e.- reactive or non-reactive size) is used in the present invention (page 2 of the specification). It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize a ketene dimer or acid anhydride as a sizing agent in order to provide a more usable surface to the paper.

Begala '629 discloses an anionic naphthalene sulphonate formaldehyde condensed polymer rather than a vinyl addition polymer.

Begala ('062) discloses a cationic polymer/anionic polymer drainage and retention system comprising a sulfonated styrene anionic polymer (col 7, lines 7-10) and recites an example that uses a polystyrene sulphonate salt (col 17, lines 42-43).

Begala ('062) also discloses that any known cationic polymer suitable as a retention aid can be used (col 4, lines 44-48).

The art of Begala ('629), Begala ('062) and the instant invention are analogous in that they treat the problem of improving retention and drainage using a combination of cationic polymer and anionic polymer. It would have been obvious to one skilled in the art to combine the aromatic cationic polymer of Begala '629 (containing dimethylaminoethyl acrylate benzyl chloride quaternary monomeric units) with the polystyrene sulphonate anionic polymer of Begala '062 as a functionally equivalent choice for the cationic polymer/anionic polymer retention and drainage treatment.

Art Unit: 1731

The instant specification does not indicate any particular advantage to using vinyl addition polymers over polymers made by any other known process. In fact, the instant specification recites examples of anionic condensation polymers as suitable for use with the invention (p 7, lines 24-33 and p 8, lines 1-4). The instant specification also recites that the anionic polymer is selected from the group consisting of vinyl addition polymers and condensation polymers (p 6, lines 31-33). Addition polymerization is a well known polymerization process and it would be an obvious to one of ordinary skill in the art make the polymers via an addition polymerization process as a well known and functionally equivalent choice.

### ***Response to Arguments***

Applicant's arguments filed 11/7/2005 have been fully considered but they are not persuasive.

Applicants argue that "Begala '629 relates to the addition of an anionic polymer, which is a formaldehyde condensate of a naphthalene sulfonic acid salt, and a cationic polymer," and that there is no suggestion or disclosure of vinyl addition polymers. Applicants further argue that Begala '062 fails to teach, suggest or disclose cationic polymers having aromatic groups.

Begala '062 discloses addition of a cationic polymer to a cellulosic slurry, followed by a shear step, then addition of an anionic polymer (separate addition) (col 6, lines 41-44). Begala '062 further discloses that a suitable anionic polymer is polystyrene sulphonate (col 7, lines 7-10 and Example 27, col 17, lines 42-43).

Art Unit: 1731

Polystyrene sulphonate is recited for the anionic polymer in Claim 8 of the instant invention. Addition polymerization is a well known polymerization process and it would be an obvious functionally equivalent process to make the polystyrene sulphonate as a vinyl addition polymer. Begala '062 also discloses that any known cationic polymer suitable as a retention aid can be used (col 4, lines 44-48). Begala '062 discloses that other additives, such as sizing agents, may be used in the process without substantial interference with the activity of the cationic polymer/anionic polymer combination (col 5, lines 8-12). Begala '062 does not disclose an aromatic cationic polymer.

Begala '629 discloses addition of a cationic polymer to a cellulosic slurry, followed by a shear step, then addition of an anionic polymer (separate addition) (col 2, lines 65-67 and col 3, lines 4-6). Dimethylaminoethyl acrylate benzyl chloride quaternary is indicated as a preferred monomer for the cationic polymer (col 5, lines 14-19). This monomer is cited on page 4, lines 4-7 of the instant disclosure as a suitable monomer. Begala '629 also discloses that other additives, such as sizing agents, may be used in the process without substantial interference with the activity of the cationic polymer/anionic polymer combination (col 4, lines 23-27). Begala '629 discloses an anionic naphthalene sulphonate formaldehyde condensed polymer rather than a vinyl addition polymer.

Begala '062 and Begala '629 both treat the problem of improving retention and drainage using a combination of cationic polymer and anionic polymer. Both patents recite examples of improved results (turbidity tests) using the polymers (Begala '062, cols 14-17, Tables 6-13 and Begala '629, cols 7-9, Tables 2-5). While the tests cannot

Art Unit: 1731

be directly compared with those of the instant specification, due to different furnishes being used and a different apparatus used to measure turbidity, the results are similar in that a significant improvement in retention and drainage is realized using the cationic polymer/anionic polymer combination.

It would have been obvious to one skilled in the art to combine the aromatic cationic polymer of Begala '629 (containing dimethylaminoethyl acrylate benzyl chloride quaternary monomeric units) with the polystyrene sulphonate anionic polymer of Begala '062 as a functionally equivalent choice for the cationic polymer/anionic polymer retention and drainage treatment. As indicated in a previous action and in the instant disclosure (p 1, lines 18-20), ketene dimers and acid aldehydes are commonly used sizing agents. Since both Begala patents provide for the presence of sizing agents, it would have been an obvious choice to use ketene dimers and/or acid aldehydes with the cationic polymer/anionic polymer retention and drainage treatment.

The instant specification does not indicate any particular advantage to using vinyl addition polymers over polymers made by any other known process. In fact, the instant specification recites examples of anionic condensation polymers as suitable for use with the invention (p 7, lines 24-33 and p 8, lines 1-4). The instant specification also recites that the anionic polymer is selected from the group consisting of vinyl addition polymers and condensation polymers (p 6, lines 31-33). It would have been obvious to one of ordinary skill in the art make the polymers via an addition polymerization process as a well known and functionally equivalent choice.

Art Unit: 1731

The copolymers disclosed by Begala et al (an aromatic cationic polymer made from dimethylaminoethyl acrylate benzyl chloride quaternary monomers and a polystyrene sulphonate anionic polymer), when added to the suspension with ketene dimers and/or acid aldehydes, are capable of improving drainage and retention as well as sizing because, where the claimed and prior art apparatus or product are identical or substantially identical in structure or composition, a *prima facie* case of either anticipation or obviousness has been established. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). In other words, when the structure recited in the reference is substantially identical to that of the claims, the claimed properties or functions are presumed to be inherent.

The Declaration under 37 CFR 1.132 filed 11/7/2005 is insufficient to overcome the rejection of claims 1-11 based upon Begala '062 and Begala '629 applied under 35 U.S.C. 103(a) as set forth in the last Office action. The test results recited in the Declaration are similar to those the instant disclosure. The tests were not directly compared with those of nearest prior art (the Begala references). The results for Begala and the instant invention are similar in that a significant improvement in retention and drainage is realized using the cationic polymer/anionic polymer combination. Similar improvement of the sized surface would be expected using the composition taught by the Begala references since use of the same composition as that of the instant invention is obvious over the Begala references. The evidence of obviousness discussed in the arguments above with relation to the disclosures of Begala '062 and Begala '629 outweigh the totality of the rebuttal evidence of nonobviousness.



***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dennis Cordray whose telephone number is 571-272-8244. The examiner can normally be reached on M - F, 7:30 -4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1731

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
DRC

  
STEVEN P. GRIFFIN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700